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## Green Logistics Practices and Business Performance of Shipping Companies in Rivers State

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**Abstract:** The aim of this research was to empirically investigate the relationship between green logistics practices and business performance of shipping companies in Rivers State. The study adopted cross-sectional survey as its research design; and a total of 72 staff of shipping companies were surveyed. More so, Spearman's Rank Correlation Coefficient was used in testing the 5 proposed hypotheses and results indicated that there is a positive and significant relationship between green logistics practices and business performance. The research concluded that the effective use of biodegradable or eco-friendly materials in organizational operation has a huge impact on market expansion and profitability. The study therefore recommends that management of shipping companies who want to improve business performance are encouraged to key into green initiatives by using recyclable materials in their operations; as these practices would improve market expansion and profitability.

**Key words:** Green Logistics, Green-Packaging, Business Performance, Shipping Companies.

### Introduction

The world increasingly being flat and fast changing; these changes have both positive and negative impact on the performance of business organizations. Ihernacho (2015) expressed that no longer can companies solely focus on economic factors because there are global and national concerns on the eco-system and the various activities therein have been increasingly evaluated by concerned individuals, groups, associations, and other agencies. Carsten (2014) stated that advocacies for an improved environment have forced companies to start re-thinking their general business models in order to key into environmental sustainability projects. Again, global competition has compelled companies to be more environmentally conscious as policies and programmes are now implemented with a great consideration of environmental safety (Harrison & Hoek, 2017).

The growth of maritime sector in any country is accompanied by continuous modeling and maritime policies (Bennett, 2000). This entails that the sector is continuously upgraded to meet international

standard and best practices in shipping policy formulation. Kaps (2004) asserts that formulating shipping policy remains one of the most controversial issues in the growth of the maritime sector in Nigeria. Maritime policy is a set of fundamental principles and guidelines, formulated and enforced by the governing body of an organization, to direct and regulate maritime activities and actions players therein, in pursuit of long-term goals and objectives. According to Sarkis (2017), the maritime sector is an area of serious importance to the Nigerian economy and a tested catalyst for socio-economic development, as it has contributed enormously to the national GDP of the country through transportation of freight, promotion of trade and commerce, revenue generation, creation of job opportunities varying from skilled to unskilled, institutional development, international relations, and promotion of tourism. In this regard, Olayiwola (2018) stated that over 96% of the transportation of Nigeria's external trade is by maritime transport. The maritime industry consists of companies and organizations whose activities supply innovative products and services related with the business of designing, constructing, manufacturing, acquiring, operating, supplying, repairing and/or maintaining vessels, or component parts thereof; of managing and/or operating shipping lines and customs brokerage services, shipyards, dry docks, marine railways, marine repair shops, shipping and freight forwarding services and similar enterprises ((Eide et al. 2007).

International trade has grown significantly following rapid increases in global sourcing activities and dispersed production sites. On the other hand, carbon dioxide emissions by the shipping industry are estimated to increase significantly as international trade continues to flourish and prosper (Kuronen, &Tapaninen, 2009). As shipping firms play a crucial role in facilitating global cargo flow, the sustainable development of shipping operations has attracted increasing attention from different stakeholders, including shippers, governments, consumer groups, civil society groups and the public. In line with this thought, Roe (2015) argued that many shipping firms are researching into new ways of enhancing environmental sustainability in their operations through which they could achieve market expansion and profitability. Again, as seaborne trade has grown significantly in the past decades, there have been increasing concerns regarding the environmental impacts occasioned by shipping activities. To address these concerns, a growing number of shipping firms have begun to adopt green operations as a means to achieve environmental sustainability and enhance business performance (Vieira, Moura &Viegas, 2007). Green operations in the shipping industry are environmentally sustainable ways to perform shipping activities. In addition, a shipping firm operates in a transport chain where various operators (e.g., ocean carriers, freight agents, land transport service providers, warehouse operators, and barge operators) in the shipping community are closely linked, in which the environmental performance of each operator affects the environmental sustainability of the shipping chain (Olayiwole, 2018). Due to the imperative role of shipping in facilitating global cargo flow, the sustainable development of shipping operations has become a concern to different groups of stakeholders (Igbowe, 2002).

In line with green philosophy, shipping companies who want to be competitive even in the long-run, must apply the green initiative in serving their target markets (Chopra &Meind, 2013). This is not far from the truth because target markets, including consumer group and other stakeholders within and outside the supply chain, are demanding that attention is paid to environmental sustainability in logistics. In this line of argument stakeholders in the supply chain must come together in ways of collaborating and co-create green value that not only sustains the environment, but also improve the profitability of each of the firms within the supply chain (Alzaman, 2014). The response by logistics firms to the calls for a greener environment is what is termed "green logistics".

Basically, the implementation of green initiative into logistics system is gaining importance worldwide. Green logistics practices such as green packaging and purchasing within the supply chain is currently considered as strategic tools in building competitive advantage and improved business success (Sarkis, 2017). In fact, because individuals and several consumer groups, including the government are increasingly more conscious than ever before on the activities of shipping firms in relation to

environmental safety; however, alert shippers are proactively reviewing their marketing programmes in ways that reflects the green philosophy by helping advance the green course and raise the awareness of environmental sustainability. By doing the above, shipping firms may now reap the advantage of going green as customers and key stakeholders who are aware of the risk associated with non-compliance with green orientation, would patronage and become loyal to these firms. According to Giovanni & Vinzi (2012), shipping firms in recent times are changing their procurement policies in a bid to advance the green crusade. Shipping firms are now engaging with or doing business with organizations who seriously adhere to green practices. For the green vision to be achieved, every player within the supply chain has a huge role in contributing to the attainment of this vision (Gwranmi & Vinzi, 2012).

A good number of studies have been carried out in the area of green logistics and its impact on various business outcomes. Green, Zelbit, Meacham & Bhadauria (2012) investigated green logistics management and its impact on firm performance. The authors examine three dimensions of green logistics which are green manufacturing, reverse logistics, and green procurement. Again, Alzaman (2014), who modeled green supply chain, developed eco label; in conceptualizing green supply chain. The author also evaluated the impact of these sub-variables on business performance, which he measured with profitability and market share. More so, Kazim & Gozde (2018) studied the impact of green logistics practices on firm performance in the Turkish health industry. The authors carried out the study by using reverse logistics practices, green distribution and marketing, and green purchasing, in conceptualizing green logistics; while firm performance was measured with operational performance, economic performance, and environmental performance. In view of the above highlighted studies, and others that were not mentioned; not very much have been looked at in the shipping sub-industry regarding green logistics. Even the few that have considered the green initiative in this sector have different geographical scope from this research. We therefore seek to bridge this knowledge gap by using green packaging and procurement as dimensions of green logistics. We further advance extent literature by introducing eco-literacy as a moderating variable in order to evaluate in this context the effect of green logistics on market expansion and profitability as it relates to shipping companies in Rivers State.

### Statement of the Problem

The maritime industry in Nigeria is very complex and sophisticated requiring a great deal of collaboration among stakeholders in order to meet target market need expectations and enhanced business performance (Sarkis, 2012). However, due to environmental concerns as a result of eco-system deterioration occasioned by massive greenhouse gas emission, pollution (noise, water, air), deforestation, substantial fuel consumption, etc; shipping firms are now faced with the challenge of contributing to the advancement of the green vision and at the same time to ensure profitability and survival. Because adhering to green policies may result to additional expenses (cost) at the expense of profit especially in the short-run business interval; however, an efficient and effective implementation of green logistics practices could bring about competitive advantage, as a good number of studies have confirmed (Green et al., 2012; Kazian & Gozde, 2018; Sarkis, 2012).

In view of the above issues, this research is therefore motivated by concerns of the highlighted challenges in the shipping sub-industry in Rivers State. In this regard, the research investigated whether activities such as observing green policies; using recycling materials for packaging; collaborating with green conscious suppliers, and adherence to environmental regulations; etc, will lead to improve market expansion and profitability. In other words, the research was set out to investigate the possibility of achieving enhanced business performance through a deliberate deployment of green packaging and procurement. Thus, the research was motivated by the above statements to empirically and/or statistically test the nexus between green logistics practices and business performance as it relates to shipping operations in Rivers State.

## Conceptual Framework of the Study and Research Hypotheses

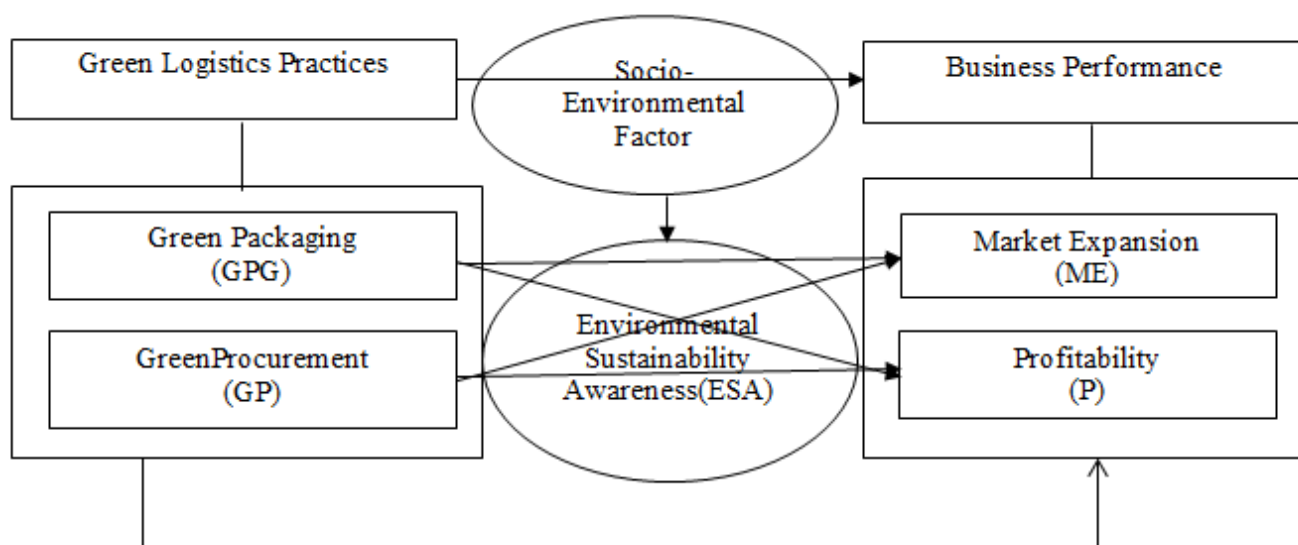


Fig. 1: Conceptual Framework of the Study

Source: Green, Zelbit, Meacham &amp; Bhadauria (2012).

The research tested the following hypotheses in course of the study:

**H<sub>01</sub>:** Green packaging does not have a significant relationship with market expansion of shipping companies in Rivers State.

**H<sub>02</sub>:** Green packaging does not have a significant relationship with profitability of shipping companies in Rivers State.

**H<sub>03</sub>:** Green procurement does not have a significant relationship with market expansion of shipping companies in Rivers State.

**H<sub>04</sub>:** Green procurement does not have a significant relationship with market expansion of shipping companies in Rivers State.

**H<sub>05</sub>:** Environmental sustainability awareness does not moderate the relationship between green logistics practices and business performance of shipping companies in Rivers State.

## Literature Review

### Theoretical Framework

#### Resource Based View (RBV)

The RBV theory has its origins in strategic management. According to Barney (1991), RBV suggests that the identification and implementation of a firm's internal strategic resources contributes to the firm's ability to develop and maintain competitive advantage that allow it achieve stated goals and objectives. Because the resources of firms vary, RBV attempts to explain how firms identify strategic resources that enables them outpace competitors by building strategically sound offerings for their target markets (Hart, 1995). In the application of RBV, it is pertinent to note that the identification and possession of a strategic resource alone does not guarantee enhanced firm performance. Moreover, Barney (1991) suggested that for firms to achieve sustainable performance across a lengthy period of time, its strategic resources must be effectively managed, given the changing business environment and the pressures and conditions that come with it.



More so, Zott (2003) posited that strategic resources and capability that enables a firm remain competitive, are unique processes or operations that are very difficult to imitate. The author further stated that a resource is considered strategic when it is valuable, non-substitutable, rare or inimitable. More so, Hart (1995) explains that strategic resources can be tangible or intangible. Examples of tangible resources are; production plants or machineries, raw materials, logistics network, technology etc. While intangible resource includes; expertise, leadership, relationship, customer patronage or loyalty, firm value, philosophy, etc.

### **Relational View Theory**

The RVT is another theory that is considered suitable for this work. The RVT is considered very useful because it helped in solving some of the controversies or limitations surrounding the RBV. Basically, the RVT propounded by Dyer & Singh (1998) has its roots primarily in the RBV. According to the scholar, because the exchange in networks of inter-organizational relation will result to a higher value that explains a higher firm performance; RVT has assisted in recognizing both the internal and external strategic resources which RBV fails to do. This research understands that firm heterogeneity is an important element in achieving differentiated performance. However, the RBV was incapable of explaining how firms develop competitive advantage in networked environments where group of firms maintain frequent and multiple collaborative relationship with alliance partners (Lavie, 2006). The authors have confirmed these constraints by evaluating the limitations of the RBV in explaining competitive advantage in networked environment. The author further opined that the RV was therefore developed in order to eliminate the barriers where the RBV could not reach.

Therefore, in relating both RBV and RV theories to this study, one would imagine the overall performance of shipping firms who adopt and adhere to green initiative policy development and implementation. These firms can build competitive advantage that result to superior performance if they ensure that suppliers, distributors and other business partners adhere to environmentally safe practices. It is important to state that in this new age of information and communication; it may be difficult to break new grounds and build competitive warfare without any form of partnership or collaboration, especially to advance the course of a greener environment that is sustainable. Hence these theories are suitable for this study.

### **Stakeholder Theory**

The stakeholder theory is a very good example for explaining the tendency of shipping firms to green their operations (Fineman & Clarke 1996). The stakeholder theory emphasizes why companies see the interests of stakeholders as valuable insight used in building their image with the objective of obtaining benefits from the various publics (Freeman 1984). In line with this thought, this research focused on identifying stakeholders and their interests and suggested ways to satisfy these interests (Contreras et al. 2008), thus offering a few insights on the conditions that nurture the adoption of green logistics initiative in shipping firms. Past studies had examined the relationship between how companies manage stakeholder requirements and whether the fulfillment of the requirements impacts on business performance (Petek & Glavič 2000). It is crucial to mention that one of the main limitations of stakeholder theory in this area study is the lack of attention to the social imperatives (e.g., environmental protection) which can be contradictory to the interests of stakeholders (e.g., productivity improvement).

### **Conceptualizing of Green Logistics Practices**

The concept of green logistics can be traced from 1990 (Srivastava, 2007). While the concept is multi-dimensional; however varying definitions have been put forward by a good number of authors. Rodrigue, Slack & Dande (2011) defined green logistics as supply chain management practices and policies that cut-down the environmental and energy footprint of freight distribution, which focuses on material handling, waste management, packaging, and transport. Again, Mesjasz-lech (2011) defined green logistics as

consisting of all activities related to the eco-efficient management of the forward and reverse flow of product and information between the point of production to the point of consumption for the purpose of meeting and/or exceeding customer demand. In addition, Lee & Klassen (2018) attributed green logistics in terms of green supply chain management. According to these authors, green logistics is the organizations' activities that take into consideration environmental issues and integrating this philosophy into the supply chain in order to enhance the environmental performance of all stakeholders. More so, Sibili & Eglee (2009) offered a more encompassing definition of the concept. To these scholars, green logistics are activities which include measuring the environmental impact of different distribution strategies, reducing the energy usage in logistics activities, reducing waste management etc.

Srivastava (2007) in his study observed that the main objective of firms going green is to cut-down the environmental externalities of firm activities in the supply chain framework. Badjer (2012) systematically reviewed literature of green logistics and discovered that, though green logistics implementation requires additional cost to management, however in the long-run, the firm can benefit from positive image and leveraging on that in building competitive advantage. The author also opined that by insisting on green programmes while relating with stakeholders, the entire supply chain may achieve enhanced environmental performance. In addition, Japhet & Moor (2018) while explaining the concept of green logistics conceptualized the construct by developing two dimensional frameworks. The authors argued that eco packaging and labeling could be used to explain green logistics.

### **Business Performance**

Firms are increasingly recognizing that environmental sustainability can be a source of organizational success in the management of key programmes (Carter & Carter, 1998). shipping firms can collaborate with key stakeholders in promoting green processes, which in-turn helps in enhancing environmental performance and reduce waste to achieve cost saving and profitability (Bjorkhnd, 2001). The greening of the entire supply chain can yield higher profitability and returns-on-investment. As Theyel (2001) argued that green initiative can lead to both increases in market expansion and business success. The author further mentioned that because customers are more sensitive to their environmental conditions, any attempt to further destroy the eco-system may "spell doom" for the shippers, thereby reducing customer patronage and profitability.

From the financial aspect of firm success, studies have shown that going green has a positive effect on the marketing outcome and can improve net income (Vaclun & Klassen, 2006). According to Bjerklind (2001) the European Union (EU)'S ecological purchasing average by 2010 to member state best practices in 2006. The author discovered that these moves by the EU help member states in improving significantly in environmental sustainability and financial performance.

Business performance in this context measures the extent to which shipping firms command sustainable market expansion and profitability (Hou, 2007). It is a reflection of customers' willingness to continue business with the firm while at the same time perceives value improvement and sales growth. This is what makes the loyal buyer become an advocate for the firm by encouraging non-users of the offering to join the crusade of patronage (Vachon & Klassen, 2006).

### **Green Logistics Practices and Business Performance**

The nexus between green logistics and business performance has long been explored by plethora of researchers. Sari & Yangin (2015) explored the link between green logistics practices and business performance. However, it was reported that there was a statistically significant relationship between products that are environmentally friendly and the market value in terms of buyers' perception towards such products. It was further ascertained that green purchasing has a strong correlation with business performance. Stock (1992) found out that green purchasing has a significant impact on firm's performance, by reducing disposal and liabilities cost, ensuring resources, and enhancing the firm's

public image. Tsoulpas & Pappis (2006) are of the opinion that the implementation of green logistics can lead to minimisation of waste, and in the long-run strengthens the reputation of the firm and the associated positive market response.

### **Green Packaging and Business Performance**

According to Palanivelu & Dhawan (2010), packaging constitutes 23% of all waste weight and 37% of all waste volume. Therefore, in order to build a more sustainable supply chain, the method of package must be ecologically centered. Also, Large & Thanson (2011) argued that green packaging must be highly recommended to every member of the supply chain if environmental sustainability will see the light of the day. The author opined that green packaging is typified by waste minimization through the use of agile materials. The author further suggested the use of recyclable containers, biodegradable bags, agile materials that may be reused.

Extant literature has it that an effective green packaging can help the firm stay competitive and meet customers' need requirement (Lee et al., 2012). Customer pressure encourages firms to key into green packaging and this has resulted to firm performance through continuous market expansion, customer patronage, and environmental performance. An investment in reusable materials and other cleaner technologies not only improves the environmental performance, but also create a competitive advantage in terms of costs minimization and enhancement of profit (Smith, 2010). The author argued that because stakeholders, especially consumer's expert put significant pressure on companies and have been recognized as an important motivating factor due to their demand and companies have no choice other than doing their bid by ensuring that offerings confirm to some environmental standard; however, these practices have been verified to enhance long-term stakeholders' satisfaction and loyalty.

From a different view, supplying firms could resort to discontinue selling materials to firms that have lost their image and reputation, the purchasing firm is known for polluting the environment and has prior or non-green practices in their business processes (Rivera-Camino, 2007). The author found out that poor public image or reputation in terms going green leads to a declined in customer commitment and negative sales growth. Christmann (2000) argued that if a firm lacks green capacity, its failure is imminent because the firm will incur or need significant cost or funds to implement eco related activities or processes hence decline in profitability and overall performance. It was also reported that environmentally packaging practices in the supply chain not only leads to increased environmental performance, but also enhance economic performance across the supply chain. For the fact that market demand could be an important motivating factor in inducing green packaging; Smith (2010) found out that market demand on eco-label products have a significant impact on the enterprise success. With respect to the above postulates, we proposed the following hypotheses:

**H<sub>01</sub>:** Green packaging does not have a significant relationship with market expansion of shipping companies in Rivers State.

**H<sub>02</sub>:** Green packaging does not have a significant relationship with profitability of shipping companies in Rivers State.

### **Green Procurement and Business Performance**

According to Lee, Kim & Choi (2012) green procurement is the adoption of certain environment friendly policies whereby firms ensure that suppliers meet their environmental objectives; of which the procurement firm may use collaboration-based activities that involves training, environmental information sharing and joint research. Again, Carzine & Jackson (2006) stated that green procurement as a policy in buying an industrial product or service with negative environmental effects in the least possible amounts. When faced with competing choice, it is the preference of materials that are fewer adverse effects on human health and environment. While green procurement is an organizational policy and strategy that have been proven to impact positively on performance especially with recycled

contents; however, in recent times, state establishments and commercial firms have developed procurement programmes towards recycled contents (Carzine& Jackson, 2006).

According to Carter & Carter (1998), the function of green procurement is the involving of recycling, sourcing-reduction activities in the supply chain. The authors also examined the effect of green procurement processes, a business and environmental performance. They found that the effective implementation of eco-purchasing activities results to not only reducing cost of pollution, but also a sustainable improvement of environmental performance and firm image in the market. More so, Zailani et al (2015) conducted a study on the relationship between environmentally friendly purchasing and organizational success. While the authors argued that with the strengthening of eco-friendly protection awareness, such actions entail the trend of organizational improvement. green procurement builds a competitive edge, protects the environment from harmful substance and enhanced firm success through customer operational efficiency and profitability (Carzine& Jackson, 2006). We hypothesized as follows:

**H<sub>03</sub>:** Green procurement does not have a significant relationship with market expansion of shipping companies in Rivers State.

**H<sub>04</sub>:** Green procurement does not have a significant relationship with profitability of shipping companies in Rivers State.

### **Impact of Environmental Sustainability Awareness on Green Logistics Practices and Business Performance**

The concept of Environmental Sustainability Awareness (ESA) is an important factor in the green purchasing decision-making process and customer purchase intention (Mida, 2009). ESA which usually explains environmental consciousness on the part of customers and other stakeholders in relation business practice that is harmful to the environment. Environmental consciousness is a social orientation that is centered on long-run well-being of individuals in the society through the reduction of negative effect associated with business processes (Rashid, 2009). The authors are of the view that ESA has a direct effect on customer's willingness to purchase green brand.

Studies have shown that business and environmental success are largely dependent on ESA of customer otherwise known as green knowledge (Thorgerson, 2002; Juwaheer, 2012). Some other studies have revealed that the awareness of eco-labels has a positive correlation between ESA and customers' intention to use ecological products (Gan et al., 2008; Young et al., 2009). The authors are of the view that customers' environmental knowledge is perceived as a major determinant of customers buying model. According to Thorgerson (2002), customers' environmental consciousness understanding portrays the important of environmentally friendly belief among customers. This therefore implies that customers are willing to pay more for green and eco-label brands. Conversely, firms that supply green offerings may also be prepared to change premium price. With the above empirical findings, we state:

**H<sub>05</sub>:** Environmental sustainability awareness does not moderate the relationship between greenlogistics practices and business performance of shipping companies in Rivers State.

### **Methodology**

The study is quantitative in nature; therefore, nomothetic data would be required as the study resorted to the use of questionnaire in eliciting information from respondents. Thus, this study adopted cross-sectional survey which is a type is quasi-experimental design. Again, the reason for this design is due to the fact that the research has a very minimum control over the study subjects, of which these subjects are human beings that behave differently in many instances. More so, the population of this study consists of staff of shipping companies in Rivers State. According to a report from NIMASA, the number of shipping companies operating in Rivers State is twelve (12) (see list-of-Shipping-comp.-in-Nig.pdf for details).



Furthermore, it is important to state that staff occupying designated positions of these companies were selected and administered with copies of the questionnaire, due to their perceived wealth of knowledge/experience acquired over time on the job that puts them in a good position to respond to questions raised in the research instrument. Specifically, the positions are marketing/sales head, accountants/internal auditors, operations/logistics managers, head production/technical engineers, senior safety officers, and procurement managers in each of the 12 companies; thereby making a total of seventy-two (72) staff considered in this research. Given the manageable population figure, it is instructive to state that there was no need for drawing sample; hence, the study's worked with the entire 72 respondents. However, the study used convenient sampling technique in accessing these staff.

Data for this study will be obtained from two principal sources-primary and secondary. While the primary source was obtained through the help of questionnaire; the secondary data were retrieved from internet publications, journal articles, public institution publications, etc. More so, the research instrument was validated through expert checking for content, therefore, a pilot study was conducted to pre-test the questionnaire. To determine the reliability of the research instrument, Cronbach's Alpha tests were carried out

Lastly, at the primary level, descriptive statistical tools such as tables and percentages were used to analyze the demographic profile of respondents. More so, Spearman's Rank Correlation Coefficient was adopted at the secondary level of analysis to test the 4 proposed hypotheses. In addition, while partial correlation was used to analyze the moderating variable; however, all analysis were carried out with the help of SPSS (version 21.0).

## Data Presentation and Discussion

### Questionnaire Distribution and Retrieval

| Details            | Frequency | Percentage (%) |
|--------------------|-----------|----------------|
| Distributed Copies | 72        | 100            |
| Returned Copies    | 63        | 87             |
| Used Copies        | 59        | 82             |

*Source: Survey Data, 2022*

A total of seventy-two (72) copies of questionnaire were distributed to respondents, out of which sixty-three (63) copies representing 87% were returned. More so out of the returned copies, only fifty-nine (59) representing 82% were completely filled and found useful in the research.

### Reliability Results

| Variables Entered                      | Cronbach Alpha Scores |
|--|-----------------------|
| Green Packaging                        | 0.703                 |
| Green Procurement                      | 0.783                 |
| Market Expansion                       | 0.702                 |
| Profitability                          | 0.749                 |
| Environmental Sustainability Awareness | 0.764                 |

*Source: Survey Data, 2022*

Table 4.2 showed output of reliability test statistics obtained. As can be noticed above, all Cronbach's Alpha score meet the 70% standard for acceptance. Therefore, the research instrument was reliable.

### Testing of Hypotheses

In this study, a total of five hypotheses were proposed earlier and tested statistically with Spearman's Rank Correlation Coefficient.

### Hypothesis One

**H<sub>01</sub>:** Green packaging does not have a significant relationship with market expansion of shipping companies in Rivers State.

**Table 4.3: Correlation Analysis Showing the Relationship between Green Packaging and Market Expansion**

#### Correlations

|                |                  |                         | Green Packaging | Market Expansion |
|----------------|------------------|-------------------------|-----------------|------------------|
| Spearman's rho | Green Packaging  | Correlation Coefficient | 1.000           | .874             |
|                |                  | Sig. (2-tailed)         | .               | .000             |
|                |                  | N                       | 59              | 59               |
|                | Market Expansion | Correlation Coefficient | .874            | 1.000            |
|                |                  | Sig. (2-tailed)         | .000            | .                |
|                |                  | N                       | 59              | 59               |

\*\*. Correlation is significant at the 0.05 level (2-tailed).

*Source: Survey Data, 2022, SPSS 21 Output*

### Decision:

From Table 4.3, the Spearman Rank correlation coefficient 0.874 confirmed the magnitude and strength of this relationship and it was significant at  $p\ 0.000 < 0.05$ . This shows that there exists a strong and positive relationship between green packaging and market expansion of shipping companies in Rivers State. The null hypothesis was rejected in favour of that of the alternate.

### Hypothesis Two

**H<sub>02</sub>:** Green packaging does not have a significant relationship with profitability of shipping companies in Rivers State.

**Table 4.4: Correlation Analysis Showing the Relationship between Green Packaging and Profitability**

#### Correlations

|                |                 |                         | Green Packaging | Profitability |
|----------------|-----------------|-------------------------|-----------------|---------------|
| Spearman's rho | Green Packaging | Correlation Coefficient | 1.000           | .655*         |
|                |                 | Sig. (2-tailed)         | .               |               |
|                |                 | N                       | 59              | 59            |
|                | Profitability   | Correlation Coefficient | .655*           | 1.000         |
|                |                 | Sig. (2-tailed)         | .000            | .             |
|                |                 | N                       | 59              | 59            |

\*. Correlation is significant at the 0.05 level (2-tailed).

*Source: Survey Data, 2022, SPSS 21 Output*

### Decision:

Table 4.4 indicated the Spearman Rank Correlation Coefficient 0.655 confirmed the magnitude and strength of this relationship and it was significant at  $p\ 0.000 < 0.05$ . This shows that there exists a strong

and positive relationship between green packaging and profitability of shipping companies in Rivers State. Therefore, the null hypothesis was rejected.

### Hypothesis Three

**H<sub>03</sub>:** Green procurement does not have a significant relationship with market expansion of shipping companies in Rivers State.

**Table 4.5: Correlation Analysis showing the relationship between Green Procurement and Market Expansion**

#### Correlations

|                |                  |                         | Green Procurement | Market Expansion |
|----------------|------------------|-------------------------|-------------------|------------------|
| Spearman's rho | Green Purchasing | Correlation Coefficient | 1.000             | .850             |
|                |                  | Sig. (2-tailed)         | .                 | .000             |
|                |                  | N                       | 59                | 59               |
|                | Market Expansion | Correlation Coefficient | .850              | 1.000            |
|                |                  | Sig. (2-tailed)         | .000              | .                |
|                |                  | N                       | 59                | 59               |

\*. Correlation is significant at the 0.05 level (2-tailed).

Source: Survey Data, 2022, SPSS 21 Output

### Decision:

Table 4.5 indicated the Spearman Rank Correlation Coefficient 0.850 confirmed the magnitude and strength of this relationship and it was significant at  $p\ 0.000 < 0.05$ . This shows that there exists a strong and positive relationship between green procurement and market expansion of shipping companies in Rivers State. Therefore, the null hypothesis was rejected.

### Hypothesis Four

**H<sub>04</sub>:** Green procurement does not have a significant relationship with profitability of shipping companies in Rivers State.

**Table 4.6: Correlation Analysis showing the Relationship between Green Procurement and Profitability**

|                |                   |                         | Green Procurement | Profitability |
|----------------|-------------------|-------------------------|-------------------|---------------|
| Spearman's rho | Green Procurement | Correlation Coefficient | 1.000             | .846          |
|                |                   | Sig. (2-tailed)         | .                 | .000          |
|                |                   | N                       | 59                | 59            |
|                | Profitability     | Correlation Coefficient | .846              | 1.000         |
|                |                   | Sig. (2-tailed)         | .000              | .             |
|                |                   | N                       | 59                | 59            |

\*. Correlation is significant at the 0.05 level (2-tailed).

Source: Survey Data, 2022, SPSS 21 Output

**Decision:**

Table 4.5 indicated the Spearman Rank Correlation Coefficient 0.850 confirmed the magnitude and strength of this relationship and it was significant at  $p = 0.000 < 0.05$ . This shows that there exists a strong and positive relationship between green procurement and profitability of shipping companies in Rivers State. Therefore, the null hypothesis was rejected.

**Hypothesis Five**

**H<sub>05</sub>:** Environmental sustainability awareness does not moderate the relationship between green logistics practices and business performance of shipping companies in Rivers State.

**Table 4.6: Correlation Analysis showing the Moderating Influence of Environmental Sustainability Awareness on the Relationship between Green Logistics Practices and Business Performance**

**Correlations**

|  |                           |                         | Green Logistics Practices | Business Performance |
|--|---------------------------|-------------------------|---------------------------|----------------------|
| Environmental Sustainability Awareness | Green Logistics Practices | Correlation Coefficient | 1.000                     | .872                 |
|  |                           | Sig. (2-tailed)         | .                         | .000                 |
|  |                           | N                       | 59                        | 59                   |
|  | Business Performance      | Correlation Coefficient | .872                      | 1.000                |
|  |                           | Sig. (2-tailed)         | .000                      | .                    |
|  |                           | N                       | 59                        | 59                   |

\*. Correlation is significant at the 0.05 level (2-tailed).

**Source: Survey Data, 2022, SPSS 21 Output**

**Decision:**

Table 4.6 indicated the Spearman Rank Correlation Coefficient 0.8872 confirmed the magnitude and strength of this relationship and it was significant at  $p = 0.000 < 0.05$ . This shows that ESA has strong and positive moderating influence on the relationship between green logistics practices and business performance of shipping companies in Rivers State. Therefore, the null hypothesis was rejected.

**Discussion of Findings**

This part of the research sought to discuss various findings as obtained from data analysis. Hypothesis one and two was tested using Spearman Rank Correlation Coefficient, and the analysis showed there is a positive significant relationship between green packaging and market expansion at  $Rho = 0.874$ ; and green packaging and profitability with a value  $Rho = 0.655$ . Therefore, we rejected the null hypothesis and accepted the alternate hypothesis in both cases, because the  $PV (0.000) < 0.05$  level of significance. These findings are consistent with the argument of Christmann (2000), where the author argued that if a firm lacks green capacity, its failure is imminent because the firm will incur or need significant cost or funds to implement eco related activities or processes hence decline in profitability and overall performance. It was also reported that environmentally packaging practices in the supply chain not only leads to increased environmental performance, but also enhance economic performance across the supply chain.

Also, hypothesis three and four from our findings showed a positive and significant relationship between green procurement and market expansion; green procurement and profitability respectively with coefficient value of  $Rho = 0.850$  and  $Rho = 0.846$ . In line with these findings, Zailani et al (2015) who conducted a study on the relationship between environmentally friendly purchasing and organizational success; argued that with the strengthening of eco-friendly protection awareness, such actions entail the



trend of organizational improvement. Eco-procurement builds a competitive edge, protects the environment from harmful substance and enhances firm success through sales growth, customer satisfaction, and profitability (Carzine & Jackson, 2006).

Hypothesis five ( $H_{05}$ ), states that ESA does not moderate the relationship between green logistics and business performance of shipping companies in Rivers State. Result from  $Rho=0.872$  shows that ESA significantly moderates the relationship between green logistics and business performance. This finding corroborates with the argument of Gan et al. (2018) when the author found out that for any success to be recorded by the firm stakeholders' (particularly customers) environmental consciousness must be high enough to inform customer satisfaction and loyalty. It is also the view of the scholar that customers' ESA level is key to marketing sustainability. This means that lack or a low of eco-literacy may hinder firms with green philosophy in achieving their environmental and economic goals.

### Conclusion and Recommendations

The effective use of biodegradable or eco-friendly materials in organizational operations and processes has a huge and positive impact on market expansion and profitability. Also, it has been confirmed that key stakeholders in today's environmentally-conscious world are disposed to collaborate and patronize shipping organizations who adhere to environmental sustainability through green practices and programmes. It was revealed that companies who insist that supplier adhere strictly to environmentally friendly policies and regulations have the opportunity to position their brand from the perspective of green orientation, and enhance profit. This entails that firms that insist on collaborating with suppliers that include environmental requirements for purchased items, in order to meet environmental objectives, have the benefit of commanding customer endorsement and improve business performance. In addition, eco-logistical programmes tend to exert a more significant purchase influence on customers that are environmentally sustainability conscious than customers who are ignorant of the impact of business activities on the environment. Thus, the more eco-literate customers within the firms target market are, the more likely that green strategic initiatives would emerge as a competitive tool in building sustainable competitive advantage.

In view of the above conclusions, the study recommends that management of shipping companies who want to improve business performance should endeavor to key into green practices by using recyclable and/or biodegradable materials in their operations; as these practices would evoke the psychology and emotions of customers to not only engage in re-patronage intentions, but also would serve as advocates in recommending services to prospective buyers. Furthermore, as proven in this study that environmental conscious stakeholders, including customers are pleased with shipping companies that procure materials from environmentally conscious suppliers; therefore, shippers are encouraged to ensure that suppliers adhere to environmental sustainability in the policies and programmes. These decisions would enhance market expansion and profitability.

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